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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/757,248	01/14/2004	Jimmie Earl DeWitt JR.	AUS920030544US1	6475

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EXAMINER	
LAI, VINCENT	
ART UNIT	**PAPER NUMBER**
2181	

DATE MAILED: 10/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/757,248	DEWITT ET AL.	
	Examiner	Art Unit	
	Vincent Lai	2181	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *13 July 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-8, 10-20, 22-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

FRITZ FLEMING
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100
9/29/2006

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/25/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 1/14/2004 and 7/1/2005 was considered by the examiner.

Response to Amendment

2. Acknowledgement is made of the amendments to the specification and claims.

3. As stated in the Interview Summary, an erroneous objection to the drawings was made and has been withdrawn.

4. Objections to specification are withdrawn after considering amendments.

5. 35 USC 101 rejections are withdrawn after considering amendments.

Response to Arguments

6. Applicant's arguments with respect to claims 1-25 been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8. Claims 1-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yates et al (U.S. Patent # 6,549,959), herein referred to as Yates in view of Burrows (U.S. Patent # 5,887,159).

FWF 9/29/2006

As per **claim 1**, Yates teaches a method in a data processing system for processing instructions, the method comprising:

responsive to receiving an instruction at a processor in the data processing system (See column 9, lines 1-5: Computer receives and processes instructions), determining whether an indicator is associated with the instruction (See column 54, lines 39-41: The monitor knows which instructions are to be profiled), wherein the indicator identifies the instruction as one that is to be monitored by a performance monitor unit (See figure 1a and column 54, lines 33-35: A profiler 400 is made available to monitor execution of instructions);

identifying a portion of code associated with the instruction as being a hot spot (See column 54, lines 41-43: Hot spots are identified) if the count of the events associated with the execution of the instruction in the counter meets or exceeds the threshold (See column 55, lines 54-58: Done by looking at frequency of), wherein

identifying a portion of code associated with the instruction as being a hot spot comprises:

generating, in the processor, an interrupt (See column 67, lines 36-38: An abort in an interrupt); and

sending the interrupt to an interrupt handler of a performance monitoring application (See column 67, lines 36-45: The abort will affect the profiler).

Yates does not teach counting with a hardware counter in order to determine a hot spot.

Burrows teaches enabling counting, by the processor, of each event associated with execution of the instruction if the indicator is associated with the instruction (See figure 5 and column 5, lines 11-13: A count field is available for keeping track of the number of times a certain action occurs), wherein the processor autonomically increments the count of the events associated with execution of the instruction in a hardware counter (A counter inherently is able to increment a count when certain operations occurs) and determining if the count of the events associated with the execution of the instruction stored in the hardware counter meets or exceeds a threshold (See column 5, lines 14-17: Counts are tracked and used to update hint information).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Yates to include the teachings of Burrows because Yates alludes to counting when it is taught that hot spots are determined by frequency (See column 55, lines 54-58). Frequency implies some sort of counting is

done and thus a counter must be present and is necessary. It would be obvious to one having ordinary skill in the art to make the counter a hardware counter as taught by Burrows.

As per **claim 2**, Yates discloses wherein the instruction is received in an instruction cache in the processor (See figure 1C: Instruction cache 112).

As per **claim 3**, Yates discloses wherein the indicator is stored in a performance instrumentation shadow cache (See figure 1C: Issue buffer is in the convert stage which is where the indicator is affected) and wherein the processor checks the performance instrumentation shadow cache to determine whether the indicator is associated with the instructions (See column 67, lines 36-45: The abort in the convert stage will affect the profiler).

As per **claim 4**, Yates discloses wherein the instruction is received in a bundle by an instruction cache in the processor (See column 55, lines 53-54: Instructions are received as packets) and wherein the indicator comprises at least one spare bit in a field in the bundle (See figure 3g and 3k: Preambles are necessary for packets and the packet structure allows for other words of Tapestry context).

As per **claim 5**, Yates discloses wherein the indicator is a separate instruction (See figure 1a: All instructions are indicators since all instructions are monitored).

As per **claim 6**, Yates discloses wherein an event in the events includes at least one of an entry into a module, an exit from a module, an entry into a subroutine, an exit from a subroutine, an entry into a function, an exit from a function, a start of input/output, a completion of input/output, and the execution of the instruction (See figures 3B-3F: Code of modules, subroutines, functions, and other calls).

As per **claim 7**, Yates discloses wherein the determining step comprises:

determining, by an instruction cache, whether the indicator is present in a field within the instruction (See figure 1a and column 54, lines 33-35: A profiler determines whether instructions are indicators).

As per **claim 8**, Yates teaches wherein the enabling step comprises:

sending a signal to a performance monitor unit (See figure 1a and column 54, lines 33-35: A profiler 400 is made available to monitor execution of instructions), wherein the performance monitor unit counts each event associated with execution of the instruction using the counter (See column 55, lines 54-58: Done with checking frequency).

Yates does not teach counting with a hardware counter.

Burrows teaches enabling counting, by the processor, wherein the processor autonomically increments the count of the events associated with execution of the

instruction in a hardware counter (See figure 6: A counter inherently is able to increment a count when certain operations occurs).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Yates to include the teachings of Burrows because Yates alludes to counting are determined by frequency (See column 55, lines 54-58). Frequency implies some sort of counting is done and thus a counter must be present and is necessary. It would be obvious to one having ordinary skill in the art to make the counter a hardware counter as taught by Burrows.

Claim 9 has been cancelled.

As per **claim 10**, Yates discloses wherein the performance monitoring application, upon receiving the interrupt, performs an action associated with the identification of a hot spot in the instructions (See column 55, lines 58-60).

As per **claim 11**, Yates discloses wherein the action includes:

storing the portion of code corresponding to the hot spot in a shadow data structure (See figure 1c: The code will be stored after conversion); and

generating a mapping from old addresses associated with the portion of code to new addresses of the portion of code in the shadow data structure (See column 55, lines 54-58).

As per **claim 12**, Yates teaches the use of logs (See column 65, lines 9-11).

Yates does not teach the generation of a log entry or notifying a log daemon.

Burrows teaches wherein the action includes at least one of generating a performance monitoring application log entry and notifying a log daemon process (See column 5, lines 53-58: A log entry is made saving any register use before an interception which is done by the monitor procedures, which are log daemon processes).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to have modified Yates to include the generation of a log entry or notifying a log daemon because Yates already teaches logging events and it would be obvious to one having ordinary skill in the art to log in such a way that events are recorded in a well known manner.

As per **claim 13-24** (with **claim 21** cancelled), the claims are directed to similar limitations as claims 1-12, with the exception that the claims are directed to a computer program product in a recordable-type computer readable medium for processing instructions instead of a method in a data processing system for processing instructions, the computer program product being disclosed in Yates column 22, lines 31-46.

As per **claim 25**, the claim is directed to similar limitations as claim 1, with the exception that the claims are directed to an apparatus for processing instructions

instead of a method in a data processing system for processing instructions, the apparatus being disclosed in Yates column 22, lines 31-46.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vincent Lai whose telephone number is (571) 272-6749. The examiner can normally be reached on M-F 8:00-5:30 (First BiWeek Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Fritz M. Fleming can be reached on (571) 272-4145. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Vincent Lai
Examiner
Art Unit 2181

vl
September 28, 2006

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9/29/2006